a multiplicity of hollow fiber membranes, or fibers, unconfined in a shell of a module, said fibers together having a surface area > 1 m2, said fibers being swayable in said substrate, said fibers being subject to a transmembrane pressure differential in the range from about 0.7 kPa (0.1 psi) to about 345 kPa (50 psi), and each fiber having length > 0.5 meter;

a first header and a second header disposed in transversely spaced-apart relationship with said second header within said substrate;

a first header and a second header having opposed terminal end portions of each fiber sealingly secured therein, all open ends of said fibers extending from a permeate-discharging face of at least one header;

permeate-collection means to collect said permeate, sealingly connected in open fluid communication with a permeate-discharging face of each of said headers; and,

means to withdraw said permeate;

the improvement comprising,

said fibers, said headers and said permeate collection means together forming a vertical skein wherein said fibers are essentially vertically disposed and terminal end portions of individual fibers are potted in proximately spaced-apart relationship in cured resin;

said first header being upper and disposed in vertically spaced-apart relationship above said second header, with opposed faces at a fixed distance;

each of said fibers having substantially the same length, said length being from between 0.1% to less than 5% greater than said fixed distance so as to permit restricted displacement of an intermediate portion of each fiber, independently of the movement of another fiber; and,

a gas distribution system having through-passages adapted to discharge bubbles near to rise through or around the skein of fibers, the gas distribution system including one or more gas tubes which space the first and second headers apart and which also carry air to the through-passages.

25. In a microfiltration membrane device, for withdrawing permeate essentially continuously from a multi-component liquid substrate while increasing the concentration of particulate material therein, said membrane device including:

a multiplicity of hollow fiber membranes, or fibers, unconfined in a shell of a module, said fibers together having a surface area > 1 m^2, said fibers being swayable in said substrate, said fibers being subject to a transmembrane pressure differential in the range from about 0.7 kPa (0.1 psi) to about 345 kPa (50 psi), and each fiber having length > 0.5 meter;

a first header and a second header disposed in transversely spaced-apart relationship with said second header within said substrate;

a first header and a second header having opposed terminal end portions of each fiber sealingly secured therein, all open ends of said fibbers extending from a permeate-discharging face of at least one header;

permeate-collection means to collect said permeate, sealingly connected in open fluid communication with a permeate-discharging face of each of said headers; and,

means to withdraw said permeate;

the improvement comprising,

said fibers, said headers and said permeate collection means together forming a vertical skein wherein said fibers are essentially vertically disposed and terminal end portions of individual fibers are potted in proximately spaced-apart relationship in cured resin;

said first header being upper and disposed in vertically spaced-apart relationship above said second header, with opposed faces at a fixed distance;

each of said fibers having substantially the same length, said length being from between 0.1% to less than 5% greater than said fixed distance so as to permit restricted displacement of an intermediate portion of each fiber, independently of the movement of another fiber, wherein the headers are rectangular in plan view and the skein has about 30 or less arrays of fibers.

26. A device for withdrawing permeate from a multicomponent liquid substrate comprising,

(a) a reservoir under essentially ambient pressure having a feed zone for containing a substrate;

(b) a microfiltration membrane device, for withdrawing permeate essentially continuously from the multi-component liquid substrate while increasing the concentration of particulate material therein, said membrane device including:

a multiplicity of hollow fiber membranes, or fibers, unconfined in a shell of a module, said fibers together having a surface area > 1 m^2, said fibers being swayable in said substrate, said fibers being subject to a transmembrane pressure differential in the range from about 0.7 kPa (0.1 psi) to about 345 kPa (50 psi), and each fiber having length > 0.5 meter;

a first header and a second header disposed in transversely spaced-apart relationship with said second header within said substrate;

a first header and a second header having opposed terminal end portions of each fiber sealingly secured therein, all open ends of said fibers extending from a permeate-discharging face of at least one header;

permeate-collection means to collect said permeate, sealingly connected in open fluid communication with a permeate-discharging face of each of said headers; and,

means to withdraw said permeate;

said fibers, said headers and said permeate collection means together forming a vertical skein wherein said fibers are essentially vertically disposed and terminal end portions of individual fibers are potted in proximately spaced-apart relationship in cured resin;

said first header being upper and disposed in vertically spaced-apart relationship above said second header, with opposed faces at a fixed distance;

each of said fibers having substantially the same length, said length being from between 0.1% to less than 5% greater than said fixed distance so as to permit restricted displacement of an intermediate portion of each fiber, independently of the movement of another fiber,

the outside of the membranes in fluid communication with the feed zone of the reservoir;

(c) a pump in fluid communication with the insides of the membranes through the permeate collection means, the pump operable to supply a suction to the lumens of the hollow fiber membranes to draw permeate through the membranes; and,

(d) a gas distribution means including a plurality of through-passages for discharging bubbles which rise and contact fibers.

29. In a microfiltration membrane device, for withdrawing permeate essentially continuously from a multi-component liquid substrate while increasing the concentration of particulate material therein, said membrane device including:

a multiplicity of hollow fiber membranes, or fibers, unconfined in a shell of a module, said fibers together having a surface area >1 m^2, said fibers being swayable in said substrate, said fibers being subject to a transmembrane pressure differential in the range from about 0.7 kPa (0.1 psi) to about 345 kPa (50 psi), and each fiber having length > 0.5 meter;

a first header and a second header disposed in transversely spaced-apart relationship with said second header within said substrate;

a first header and a second header having opposed terminal end portions of each fiber sealingly secured therein, all open ends of said fibers extending from a permeate-discharging face of at least one header;

permeate-collection means to collect said permeate, sealingly connected in open fluid communication with a permeate-discharging face of each of said headers; and,

means to withdraw the permeate;

the improvement comprising,

said fibers, said headers and said permeate collection means together forming a vertical skein wherein said fibers are essentially vertically disposed and terminal end portions of individual fibers are potted in proximately spaced-apart relationship in cured resin;

said first header being upper and disposed in vertically spaced-apart relationship above said second header, with opposed faces at a fixed distance:

each of said fibers having substantially the same length, said length being from between 0.1% to less than 5% greater than said fixed distance so as to permit restricted displacement of an intermediate portion of each fiber, independently of the movement of another fiber;

walls extending downwards from a lower header of the first and second header, the walls being adapted to retain a gas below the lower header; and,

through-passages for gas to pass through the lower header from an area below the lower header bordered by the walls.